



## ***OIT's "States Team" extends "Industry of the Future" philosophy and resources to local levels***

As many of our partners around the country can tell you, OIT's **States Team** operates a little differently from its nine industry teams. For example, OIT's industry teams—**Agriculture, Chemicals, Forest Products, Aluminum, Metalcasting, Steel, Glass, Mining and Petroleum Refining**—all have a national focus. Often, they partner with companies in their respective industries through national trade associations. The **States Team**, on the other hand, organizes its efforts by geography first. It forms industry coalitions in states or geographic regions, and helps states take advantage of industry visions, roadmaps, activities, investments, partnerships, and programs at the national level.

"The **States Team** simply takes a different 'cut' on the universe of American manufacturing companies," explained Doug Kaempf, Director of OIT's Office of Industrial Process Systems. "By looking at our potential customers geographically, from a state or regional perspective, we can involve many additional organizations—those that might not want to send people across the country to meetings, or those represented locally only on a plant level, or those that simply might not have heard about national OIT programs. The **States Team** complements, supports and extends the IOF philosophy by informing more people about their industry's vision, roadmap and newly commercialized technologies, and greatly expands our partnership opportunities."

"By reaching industry people in their roles as 'state corporate citizens,' we're providing a different type of incentive and coming at it from a different angle," added OIT **States Team** Leader Jim Quinn. "Participants are not only assisting their own companies and their own industries, but also

their local economies and environment. The Team brings right to the doorstep of these groups the benefits of energy-saving technologies, and waste- and pollution-reducing methodologies, while helping to foster local industry and create jobs. The Team helps OIT spread the word and get a higher level of involvement with products and services that have a proven record of helping industry be more competitive. It's a win for all concerned."

### **States Team grants**

Unlike OIT's nine industry teams, the **States Team** does not specifically fund R&D projects. Rather, it provides grant funding (through DOE's State Energy Program) to intrastate or regional groups working to bring together representatives of a particular IOF industry or industries in their areas. DOE's Regional Offices bring news about the products, services, new technologies and partnership opportunities available through OIT.

One excellent example of a **States Team** ongoing success story is its first participant, the State of West Virginia. Local IOF coordinator, Carl Irwin, a Director of Program Development at West Virginia University's Coal and Energy Research Center, describes the genesis of OIT's **States Team**.

"Our carbon products group was partnering with OIT on an **Advanced Industrial Materials** project," he explained. "(DOE's Deputy Assistant Secretary for Industrial Technologies) Denise Swink was visiting the facility and I mentioned that the IOF industries were prominent in WV. She saw the opportunity right away, and said 'sounds like we need a States IOF.' The idea really clicked with everyone in the room."

*(continued on page 8)*

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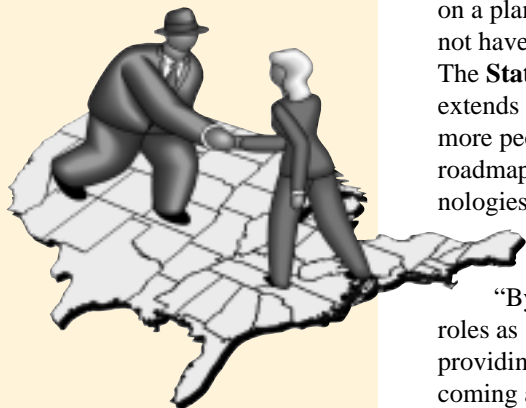
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## AWARDS

Three OIT-sponsored technologies will receive 1999 *R&D Magazine* R&D 100 awards. These include:

- A submergible robotic system, called Maverick, developed by Solex Robotics and Idaho National Engineering and Environmental Lab under support from **NICE**<sup>3</sup>.

- An innovative method for treating metal and ceramic powders, the Mechanical Fluidized Vacuum (MFV) system, developed by William Kemp of Houston and sponsored by the **Inventions & Innovation** program.

- A Galvanneal Temperature Measurement System supported by OIT's **Steel** Team and developed by Oak Ridge National Lab, the American Iron and Steel Institute, Bailey Engineers and National Steel Technical Center

Cummins Engine Co., U.S. Electrical Motors and McBroom Electric Co. were recognized by **Motor Challenge** for joint participation in a motor system efficiency project. The effort resulted in annual energy cost savings of \$207,000 for Cummins' Columbus, IN, plant.

Dr. F. William Kirsch was recognized at the Industrial Assessment Center Annual Directors Meeting for his 20-year contribution to the **IAC** program.

## Renewable Bioproducts *Six new projects underway*



The **Agriculture** Team selected its first round of *Renewable Resources 2020* projects. Altus Biologics, Cambridge, MA, will lead development of an improved catalytic process to convert corn to

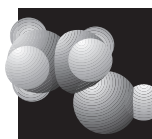
chemicals. In Minnetonka, MN, Cargill Dow Polymers will work with NREL and Colorado School of Mines to explore using corn-derived polylactic acid to make a new class of biodegradable plastic material. The National Corn Growers Assoc., St. Louis, MO, will lead the development of new processes for turning corn into value-added chemicals. Pendleton Flour Mills in Pendleton, OR, will explore using mill feed starch from wheat flour milling to make selected consumer goods. A series of biodegradable, low-toxicity soybean-based engine oils for recreational marine use will be examined by Terresolve Technologies in Eastlake, OH. The Univ. of California at Davis will develop technology and data to support a commercial bioprocess using wood waste, rice straw, or waste sugar to make commodity chemicals and other products.... DOE's Office of Energy Efficiency and Renewable Energy selected the Team's topic on "BioEnergy for the 21st Century" for the next SBIR program solicitation. The BioEnergy topic will cover renewable resource-based chemicals, fuels and power. (Contact: Doug Faulkner, 202-586-2119)



An ingenious new manufacturing process, supported by the **Inventions & Innovation** program, has been selected to receive a 1999 *R&D Magazine* R&D 100 Award.

The process, developed by William Kemp of Houston, is called the Mechanical Fluidized Vacuum (MFV) system, an innovative method for treating metal and ceramic powders that reduces energy consumption by some 70%. A fact sheet on the technology is available at [www.oit.doe.gov/inventions](http://www.oit.doe.gov/inventions).... Proposals received in response to the

## Chemicals *Team project wins President's Green Chemistry Award*



A **Chemicals** Team project on levulinic acid received the Presidential Green Chemistry Award at the National Academy of Science in June. Started in 1994 and managed by

OIT's Merrill Smith and Gloria Kulesa, the project sought ways to convert paper sludge into an inexpensive, intermediate chemical that could in turn be

processed into new materials, herbicides and fuel extenders. Project partners receiving the award included Biofine, National Renewable Energy Lab, Pacific Northwest National Lab, the New York State Energy R&D Authority, Merichem and Pencor.... Team members continue a hectic pace of site visits and workshops. ACS' Office of Industry Relations will be sponsoring a site visit to Bishop, TX to learn about BASF's new process for making ibuprofen.

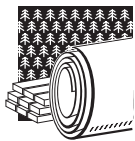
The visit will also kick-off ACS' "Alternatives" Roadmap. ACS and the Supply Chain Council are moving ahead with panels and workshops on supply chain issues for the chemical industry. Also, the Materials Technology Institute will complete its roadmapping efforts with a final workshop in September. Team partners—CeraMem Corp. and Membrane Technology and Research, Inc.—received SBIR Phase II awards. (Contact: Hank Kenchington, 202-586-1878)



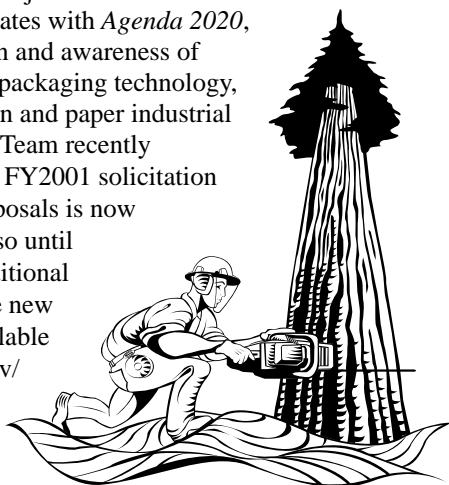
program's FY00 solicitation are currently in Merit Review. Selection of 25-30 new projects is anticipated later this year.... The I&I program is holding a series of conferences to help familiarize inventors and small businesses with the technology needs identified in IOF industry roadmaps. The events will be held through December in Tacoma, WA, Indianapolis, Houston, San Diego, Boise, ID, Anchorage, Seattle, Tulsa, and Salt Lake City. Additional information on these and previously sponsored I&I conferences can be found at [www.oit.doe.gov/inventions](http://www.oit.doe.gov/inventions). (Contact: Sandy Glatt, 202-586-3897)

## Forest Products

### Two dozen new projects underway



The **Forest Products** Team has selected 24 new R&D projects for FY00 funding. The new project partners, which include universities, trade associations, National Labs and private firms, are sharing on average about 30% of project costs. The projects were chosen from among five key *Agenda 2020* technology areas: 2 in Sustainable Forestry, 6 in Environmental, 6 in Energy, 5 in Recycling and 5 in Sensors and Controls.... With its Institute of Paper Science & Technology partner, the Team proudly sponsored Energy Challenge '99, held this year at Georgia's Sweetwater Creek State Park. This innovative contest challenges college-level students to solve an engineering problem using only paper products. This year's event demanded the design and construction of a floatable nine-foot long kayak constructed solely from paper products. The Univ. of Maine, with Senior Jaime Morin at the helm, won the competition, paddling its paper kayak 300 meters in just over three minutes. The competition correlates with *Agenda 2020*, fostering education and awareness of design efficiency, packaging technology, waste minimization and paper industrial processes. .... The Team recently announced that its FY2001 solicitation for new R&D proposals is now open, and will be so until November 1. Additional information on the new solicitation is available at [www.oit.doe.gov/forest/](http://www.oit.doe.gov/forest/). (Contact: Valri Robinson, 202-586-0937)



### New OIT Strategic Plan helps chart organization's future course

OIT's new strategic plan should help our customers gain insight into the challenges and opportunities facing the organization and how it intends to respond. The plan provides an analysis of the state of energy-intensive U.S. industries, and explains why joint public-private sector technology partnerships are a necessary strategy for coping with the complex environmental, technological and global competitiveness challenges facing industry today. By identifying OIT's vision, mission, and goals, the *Office of Industrial Technologies' Strategic Plan* sets the future course for the organization.

The *Strategic Plan* also describes key elements of OIT's strategy, e.g., to:

- Focus on energy-intensive and environmentally-sensitive industries
- Establish partnerships with industry
- Facilitate the State IOF process
- Apply the IOF strategy to align industry and government resources

The plan details the factors that drive these elements and how OIT plans to determine that its efforts are achieving their intended results.

Finally, the *Strategic Plan* discusses program implementation. The publication states that, "To ensure success, OIT must implement its programs effectively, employing sound Federal research management strategies."

The *OIT Strategic Plan* will be available October, 1999, at no cost to OIT customers. To obtain a copy, contact OIT's Resource Room at (202) 586-2090



This year's **NICE<sup>3</sup>** solicitation included several new features that distinguish it from those held in the past. The NICE<sup>3</sup> solicitation was run concurrently with that of the **Inventions & Innovation** program

in order that proposers could benefit from opportunities available through both programs. Also, NICE<sup>3</sup> worked closely with colleagues from OIT's many industry teams in order to get word about the solicitation out to innovators

in these industries. In addition, a new Merit Review Committee—comprised of OIT staff and experts from academia, industry and DOE National Labs—will evaluate NICE<sup>3</sup> proposals with an eye on potential synergies with proposals submitted to the I&I program. Awardees for both programs are scheduled to be announced in December. (Contact: Lisa Barnett, 202-586-2212)



## ***Initial “plant-wide” energy efficiency assessments coming***

OIT will soon select the initial six participants for its new “plant-wide” energy efficiency assessments. At a plant site for each of the participants, the assessments will evaluate a variety of energy efficiency opportunities in steam systems, electric-motor systems, compressed air systems, heat exchange networks, combined heat and power systems and so on. The assessments will evaluate energy efficiency opportunities using process engineering and best practice analysis techniques. OIT and the participants will share the cost of the assessments (estimated at about \$150,000 per plant) on a “50-50” basis.

Plants will be selected based on proposals received in response to a solicitation that OIT ran earlier this year. Each proposer is being evaluated on demonstrated technical proficiency and core competency in the implementation of a comprehensive plant-wide systems approach to increase energy efficiency and reduce environmental emissions.

OIT hopes that the results from these assessments will encourage other energy-intensive U.S. companies to replicate this approach to improving energy efficiency. Hence, OIT will publish and widely distribute the completed assessments in order to help inform industry about the

## ***Steel Three new projects selected***



The **Steel** Team has selected three new R&D projects based on industry-identified priorities. “Controlled Thermo-Mechanical Processing of Tubes and Pipes for Enhanced Manufacturing and Performance” will develop a simulation model of the tube making process with component models of heat transfer, deformation, and metallurgical responses. “Research Related to the Development of the Automated Steel Cleanliness Tool” will develop a practical electron microscopy technique for determining the composition, size, shape and distribution of inclusions in steel during processing. “Novel Low-NOx Burners for Boilers in the Steel Industry” will develop a gas-fired burner that can maintain less than 15 ppm NOx emissions in steel industry boilers using available combinations of blast furnace, coke oven, and natural gas.... The Team is creating a number of studies to help inform steelmakers about the greenhouse gas emissions of various processes, and effective and practical reduction opportunities. One study is looking at the “theoretical minimum” CO emission levels of each process, a second study is quantifying “reasonably achievable” levels using “best practices,” and a third study provides details on the latest technologies and procedures to reduce steel mill CO emissions. (Contact: Scott Richlen, 202-586-2078)

benefits of using a plant-wide approach to energy efficiency and how to do this.

Another OIT “plant-wide” assessment solicitation is imminent. Proposals will likely be due in January, 2000. For additional information, go to [www.oit.doe.gov/news/solicitations.shtml](http://www.oit.doe.gov/news/solicitations.shtml).

## ***Aluminum New solicitation announced***



The **Aluminum** Team announced that a new solicitation for R&D proposals will be open until November 4. The new solicitation supports the *Aluminum*

*Industry Roadmap* and the *Inert Anode Roadmap*. Solicitation information can be found at [www.id.doe.gov/doeid/PSD/procdiv.html](http://www.id.doe.gov/doeid/PSD/procdiv.html).... For advanced cell R&D, additional background information is provided in

the *Report of the American Society of Mechanical Engineer's Technical Working Group on Inert Anode Technologies*, published in

July 1999. The report assesses the technical, economic and environmental barriers of advanced reduction systems, and the merits of various approaches to developing these systems. It also summarizes past and current R&D efforts in

advanced cell technology, and suggests possible directions for future R&D in the area. Prepared at the request of OIT, the report was written by a panel of experts in aluminum production technology, and coordinated by ASME's Center for Research and Technology Development. Copies are available from the OIT Resource Room at 202-586-2090. (Contact: Sara Dillich, 202-586-7925)



## ***Get back issues of The OIT Times on the web***

Just a reminder that this issue and all back issues of *The OIT Times* are available at [www.oit.doe.gov/oittimes](http://www.oit.doe.gov/oittimes). All issues are available in both HTML and PDF formats for easy viewing, downloading and copying. You can also sign up to get on *The OIT Times* mailing list.

## ***Metalcasting Diecasting Showcase '99 coming in November***



In partnership with the North American Die Casting Association, the Team will sponsor Diecasting Showcase '99 on November 4 at Lester Precision Die Casting, Inc. in Twinsburg, OH (near Cleveland). The event will demonstrate various energy-efficient diecasting technologies and "best practices" that have been supported by OIT. The Lester plant, which opened in 1992, is a state-of-the-art die casting facility and one of the most highly automated such plants in North America.... OIT's comprehensive new *Energy and Environmental Profile of the U.S. Metalcasting Industry* establishes a baseline for assessing the industry's future technology advancements and progress toward energy and environmental goals. For each major metalcasting process, the report provides a descriptive overview, estimates energy requirements by fuel type, and characterizes the emissions, effluents, byproducts, and hazardous wastes. Existing treatment and control technologies are also discussed. The 106-page report is available through OIT's Resource Room at 202-586-2090. (Contact: Harvey Wong, 202-586-9235)



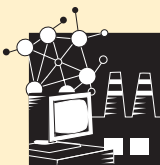
## ***States Corner***

OIT's **States** Team, in conjunction with the State Energy Program Special Projects for Industry effort, recently awarded FY99 grants totaling \$3.5 million to 27 groups in 26 states (see map on p.8). The grants will enable states and regional groups to bring together energy-intensive industries in their areas to benefit from OIT Best Practices programs and IOF R&D efforts as well as potentially become involved in national R&D projects. State grant recipients include: KY where ARCO Aluminum is helping to champion the effort; OR which is starting up a variety of marketing analyses, workshops and showcases for energy-intensive industries in the state; and PA which will start four industry-specific roadmaps (steel, metal casting, mining and glass), and form alliances to implement R&D action plans of the state's agriculture and chemical industries.... The Team is working with WV's IOF organization on the latter's 3rd Annual Symposium later this Fall. The Symposium brings together representatives from industries throughout WV to discuss their IOF work and look for additional opportunities to work cross-industry and boost competitiveness and energy efficiency in the state. Several OIT staff and partners are planning to attend. (Contact: Jim Quinn, 202-586-5725)



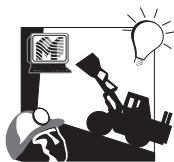
The **Industrial Assessment Center** program has started an alumni newsletter for program graduates. The latest issue featured three alumni who credit the IAC program with helping them excel in their careers. Phylissa Miller and Michael Rogers, who joined the program at the Univ. of Tennessee and San Diego State Univ. respectively, now hold management positions at energy consulting firms. The third, Adam Boese, is owner of his own energy consulting firm. Says Boese: "The IAC program provided a jump

start to my career in energy efficiency." In addition, Boese sees the energy efficiency industry as one offering great potential for graduating engineers, noting that "There is a great need for their clear minds and innovation." Copies of the newsletter are available at [oiea-www.rutgers.edu/iac/iac\\_f.html](http://oiea-www.rutgers.edu/iac/iac_f.html).... The IAC program held its annual Directors' Meeting in August. Over two dozen IAC Directors from across the country attended to discuss a recent assessment of the program and hear about numerous current topical areas in OIT. (Contact: Chuck Glaser, 202-586-1298)



The **Advanced Industrial Materials (AIM)** Program held its Annual Review Meeting in CA in June. Industrial partners who made presentations included Dow Chemical, FMC, Stone and Webster, Greenleaf, National Refractories, Weyerhaeuser, BP Amoco, Accutru International, Ford, and Delphi Automotive Systems. Participants also visited the Combustion Research Facility at Sandia National Laboratories in Livermore, where they viewed the construction of a one-third scale glass melting furnace to be used by the glass industry for combustion and melting investigations.... A recent issue of *Dateline: Los Alamos* featured an article on advanced ultracapacitors, powerful and long-lived battery-like devices that cut energy use and emissions across many industrial sectors. These devices were developed with long-term assistance from the AIM Program. (Contact: Charlie Sorrell, 202-586-1514)

## **Mining** ***First solicitation leads to ten new projects***



The **Mining** Team's first solicitation has resulted in ten new cost-shared R&D projects. The new project selections were based on recommendations from the National Mining Assoc., and address such areas as improved rock blasting and crushing, modeling of mining processes, ore imaging and analysis technologies, improved underground communication, and advanced vehicle systems. This first batch of new projects are all National Lab-led enabling the mining industry to benefit from expertise of the DOE labs in such areas as fuel cells, computer modeling, high-temperature superconductors, advanced materials, and robotics. More than 20 private firms and 8 universities across 21 states are partnering with DOE labs in these projects.... A second Mining Team solicitation, inviting proposals directly from industry and university partners, closed in August. Awardees will be announced soon at [www.oit.doe.gov/mining](http://www.oit.doe.gov/mining).... Federal coordination efforts included a visit to the Army Research Lab in Aberdeen, MD to evaluate military technologies for possible use by the mining industry. (Contact: Toni Grobstein Marechaux, 202-586-8501)



The **Distributed Generation** program launched an 8000-hour demonstration of its **CFCC** liners at Malden Mills in MA. Developed with Solar Turbines, the liners will operate in the textile mill's gas turbine.... To broaden the scope of its Advanced Turbine Systems R&D effort, the program is planning several solicitations addressing reciprocating engines, microturbines and other high efficiency technologies, possibly starting by late 1999.... The program sponsored a workshop to facilitate an industry-led advanced materials technology roadmap for gas turbines. Workshop proceedings are available at [www.oit.doe.gov/cogen/](http://www.oit.doe.gov/cogen/). (Contact: Pat Hoffman, 202-586-6074)

## **Petroleum Refining** ***Team meets with NPRA***

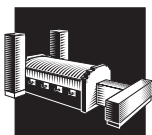


The **Petroleum Refining** Team recently met with officials from the National Petrochemical and Refiners Assoc. who presented an overview of the industry, from the chemistry and science of the refining process to national industry statistics.... The Team's well-received report "*Energy and Environmental Profile of the U.S. Petroleum Refining Industry*" is now available for download in a pdf file at [www.oit.doe.gov/petroleum/](http://www.oit.doe.gov/petroleum/).... Although the industry's Vision and Technology Roadmap are still being finalized, petroleum refiners should keep abreast of the long list of industry-relevant technologies being developed with support from other OIT programs. Work of interest to the Petroleum Refining industry is currently being sponsored by the **Chemicals** Team, as well as the **Advanced Industrial Materials, CFCC, Distributed Generation, Sensors & Controls, Combustion, and NICE3** programs. (Contact: Gideon Varga, 202-586-0082)





## **Glass Partnership with GMIC formalized**



The **Glass** Team signed a cooperative agreement with the Glass Manufacturers Industry Council, the first organization to represent the entire multi-faceted glass industry. GMIC will help facilitate the Team's relationship with the industry in line with its strategic vision and roadmap goals. Says Michael Greenman, GMIC Acting Executive Director, "The agreement formalizes our relationship and helps assure this will be a long-term partnership that will benefit all sectors of the American glass industry. The closer relationship between OIT and GMIC will also make it easier for the glass industry to benefit from other valuable OIT programs, such as **Motor Challenge** and **NICE<sup>3</sup>**.... The Team is working with GMIC on its R&D solicitation for FY01, which is scheduled to open this Fall. The solicitation is expected to seek the development of high priority technologies including: advanced sensor technologies and measurement techniques; intelligent controls for production and fabrication processes; improved combustion efficiency or heat recovery; accurate, validated melter models; identification of emission mechanisms from glass and raw materials; and predictive emission modeling tools, as well as the development of innovative uses of glass. (Contact: Theo Johnson, 202-586-6937)



The **Combustion** Program will soon select new R&D projects from its FY99 solicitation. The solicitation targeted needs identified in the combustion industry-led vision and roadmap. Selections will be based on recommendations from industry reviewers, and will focus on improving the efficiency and emission performance of integrated boiler systems and integrated process heater systems. Selections will be posted at [www.oit.doe.gov/combustion....](http://www.oit.doe.gov/combustion....) Two demonstration projects are currently underway. One, a FIR burner operating at a manufacturing facility in CA, is expected to demonstrate NOx performance of 9 ppm or less. The other project, focusing on dilute oxygen combustion technology, is operating at Auburn Steel in NY. The technology is expected to significantly reduce NOx and increase productivity in the 2000°F+ environment of a steel reheater furnace. Next, Praxair will redesign a furnace to fully realize the benefits of dilute oxygen combustion. (Contact: Gideon Varga, 202-586-0082)



The recent **Sensors and Controls (S&C)** program solicitation—which focused on sensors and measurement technologies, data processing and transformation, and sensor and control integration—expects to announce its new project selections soon. Awards will be posted at [www.oit.doe.gov/sens\\_cont](http://www.oit.doe.gov/sens_cont). Additional S&C topics may be included in the DOE/EE SBIR/STTR FY00 solicitations.... Awards selected from the SBIR FY99 topic area on "Advanced Measurement and Control Technologies for Industrial Manufacturing Application" are scheduled to be announced soon.... The program is organizing a session on "Sensors and Industrial Process Control" for the PittCon 2000 Symposium in New Orleans March 12-17, 2000. Topics to be addressed include on-line measurements of physical properties; chemical composition of industrial processes; integrated, intelligent sensing devices such as wireless sensors; and chemistry-laboratory-on-a-chip. Session proceedings will be available through the OIT Resource Room after the event. Visit the PittCon 2000 website ([www.pittcon.org](http://www.pittcon.org)) for a full conference agenda. (Contact: Eric Lightner, 202-586-8130)



Industrial partners of the **Combined Heat & Power (CHP) Challenge** program have completed a technology vision. To view a copy, go to [www.oit.doe.gov/chpchallenge....](http://www.oit.doe.gov/chpchallenge....) This Fall, the program will be sponsoring workshops to bring together public utility commissions, suppliers, end-users and other interested parties to address the barriers to installing, permitting and siting CHP units. Workshops will be held in New York on Oct. 6, and in Chicago on Nov. 10. An international workshop is planned for February, 2000.... The program recently redesigned its website at [www.oit.doe.gov/chpchallenge](http://www.oit.doe.gov/chpchallenge). New features include fact sheets, case studies, and meeting schedules. (Contact: Pat Hoffman, 202-586-6074)



As part of the **Continuous Fiber Ceramic Composite (CFCC)** program, Engineered Composites Inc. has been evaluating the use of the advanced material for gas circulation fans in heat treating furnaces. Replacement of the incumbent steel fans with lighter CFCC fans is expected to result in reduced power usage, improved efficiency, greater durability, and reduced maintenance costs. The material is fabricated using a versatile polymer impregnation and pyrolysis process, and has survived five months of continuous exposure in a 1600°F carburizing environment. A full-sized furnace fan has been fabricated for evaluation by Surface Combustion, and a full scale test is planned for later in 1999. (Contact: Debbie Haight, 202-586-2211)





## Improving steam systems efficiency: The Mobil Corp. experience

If you're trying to improve your organization's steam systems efficiency, check out a series of steam-related case studies developed for OIT by Mobil Corp. The company is documenting with OIT several steam systems improvements. According to OIT Best Practices **Steam** Program Manager Fred Hart, "Mobil's experience can really benefit other industrial steam users. Mobil takes the kind of systematic approach to plant energy efficiency that Best Practices promotes."

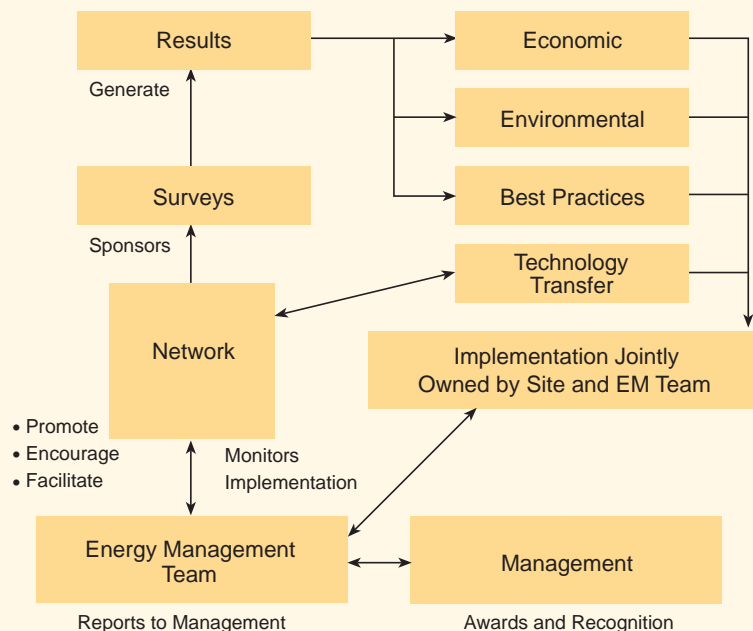
Mobil's approach involves a three-person Energy Management Team that oversees a 140-person network (see figure below). The network is composed of energy site specialists from divisions around the world. One of the key activities of the network is the coordination of on-site energy surveys. Members of the network ask the Energy Management Team to perform energy surveys in their plants. These surveys identify potential cost reductions in energy intensive areas including steam, compressed air, cooling systems, HVAC, lighting and motors. The results of each survey are written up, reviewed and approved by the site and then sent to the entire network. After receiving the survey report, the site that was surveyed implements the changes. So far, 39 surveys have been performed. Since 1994, network facilities have realized over

\$103 million of savings through energy initiatives—a real success story for Mobil.

One member of Mobil's Energy Management Team, Fred Schoeneborn, describes the company's initiative as "key to Mobil's energy management efforts." According to Schoeneborn, "The Energy Management Team consists of individuals who 'own' energy consumption in Mobil plants around the world. That's why their voluntary participation is so important. Their dedication to the program has been an important factor in our success." He adds that Mobil's recognition of staff contributions also plays a part in the program's success. Mobil's Excellence in Energy Efficiency Award recognizes staff that contribute to a 5% reduction in energy consumption or \$1 million in savings in a year at their sites.

Copies of OIT's Mobil steam system efficiency case studies will be available soon from OIT's Resource Room at (202) 586-2090. Case study topics include improved process heating, reducing losses in steam distribution, and combined heat & power. For more information on OIT's Best Practices steam program, contact Fred Hart at (202) 586-1496 or visit [www.oit.doe.gov/steam](http://www.oit.doe.gov/steam).

### Mobil's Energy Management Process



# INFORMATION CORNER

## CALENDAR\*\*

IEA Annex Meeting on Cogeneration, Sep 27-28, San Diego, CA

AISE's Iron and Steel Show, Sep 27-30, Cleveland, OH

Association of Small Business Development Centers Fall Conference, Oct 2-5, San Diego, CA

CHP Meeting, Oct 6, NY, exact location TBD

National Mining Assoc.'s Convention '99, Oct 10-13, St. Louis, MO

Copper '99, Oct 10-13, Phoenix, AZ

Glass Problems Conference, Oct 18-20, Champaign-Urbana, IL

Alaska Complete Facilities Management Trade Show & Conference, Oct 28-29, Anchorage, AK

ASM Materials Conference, Nov 1-4, Cincinnati, OH

National Assoc. of Management and Technical Assistance Centers Fall Conference, Nov 7-9, Seattle, WA

National Assoc. of State Universities, Commission on Food, Environment, and Renewable Resources, Nov. 8-9, San Francisco, CA

ATS Annual Program Review, Nov 8-10, Pittsburgh, PA

ACerS Refractory Ceramics Division Joint Meeting, Nov 14-16, Pittsburgh, PA

West Virginia Industries of the Future Symposium, Nov 18, Flatwoods, WV

\*\* Numerous OIT "best practice" motor, pump, and water workshops are planned; visit [www.oit.doe.gov/news/calendar](http://www.oit.doe.gov/news/calendar) for dates and locations.

## COMING SOON

The 2000 edition of OIT's *Information Resources Catalog* will be available Fall, 1999. OIT customers will find useful information on more than 400 OIT-sponsored products that can help increase industrial energy efficiency and productivity, and reduce pollution and waste. Products include technical reports, brochures, databases, videos and software among numerous other useful items.

The catalog and most OIT products described in it are available at no cost. To sign up for a copy of the catalog, contact OIT's Resource Room at (202) 586-2090.

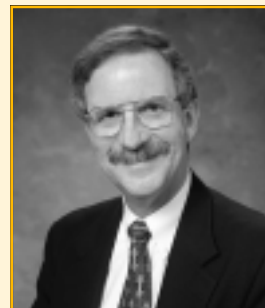
## New study shows DOE Labs contributions to industrial technology development

According to a report by the Laboratory Coordinating Council (LCC), DOE's National Labs have made significant contributions to the development of OIT-sponsored technologies. The LCC's study looked at technologies identified in a January, 1999, OIT report, *Impacts*, which describes some of the benefits OIT investments have had on the U.S. economy and environment (see p. 1 of the Summer, 1999 issue of *The OIT Times*).

The results indicate that 14 of the 34 (over 40%) **commercially-available** technologies involved one or more national laboratories at some stage in the technology development cycle. In all, the 14 projects involved seven different laboratories. The laboratories were primarily involved with projects related to the aluminum, chemicals, steel and crosscutting sectors.

The results also indicate that 31 of 60 (52%) **emerging technologies** involved one or more national laboratories at some stage in the technology development cycle. Nine different laboratories were involved with development of emerging technologies. The laboratories heavily contributed to projects in the petroleum, aluminum, chemicals, metalcasting, steel, forest products, and crosscutting sectors.

For a copy of the report, titled *National Laboratory Technology Contributions Impact the Economy and Environment*, call Steve Weiner, Chair of the LCC, at 202-646-7870 or visit the LCC's website at [www.oit.doe.gov/LCC/](http://www.oit.doe.gov/LCC/).



**PNNL's Steve Weiner,  
Chair of the LCC**

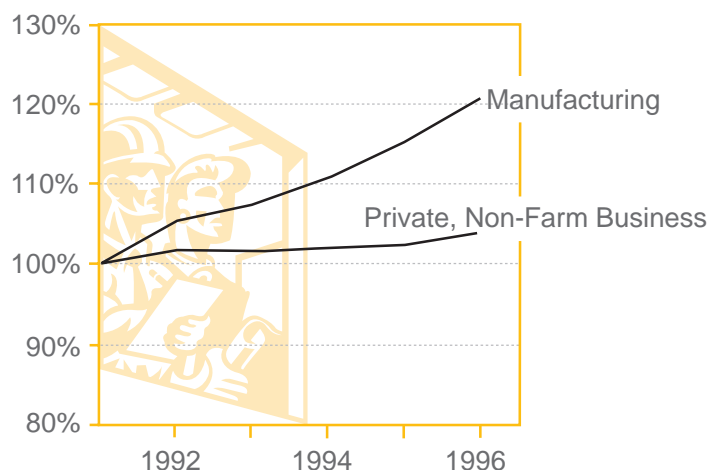
## NEW PUBLICATIONS

Title	Area
Annual Progress Report, FY 1998	Advanced Industrial Materials
Project Summaries and Significant Accomplishments, FY 1998	Advanced Industrial Materials
Combustion Industry Vision	Combustion
Combustion Industry Roadmap	Combustion
Oxyfuel II Workshop Proceedings	Glass
From Invention to Innovation, 1999	I&I
Report of Technical Working Group on Inert Anode Technologies	Aluminum
Energy & Environmental Profile of the U.S. Metalcasting Industry	Metalcasting

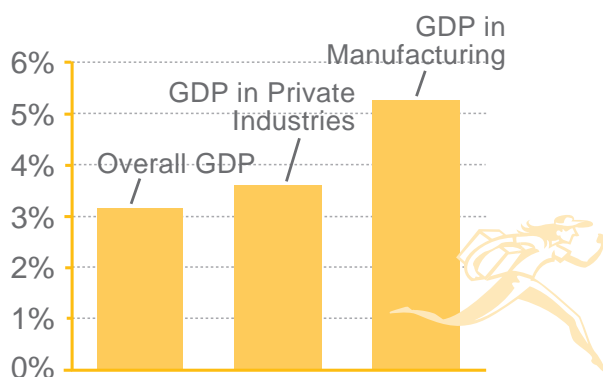
Call 202-586-2090 to order copies.

# INDUSTRY TRENDS

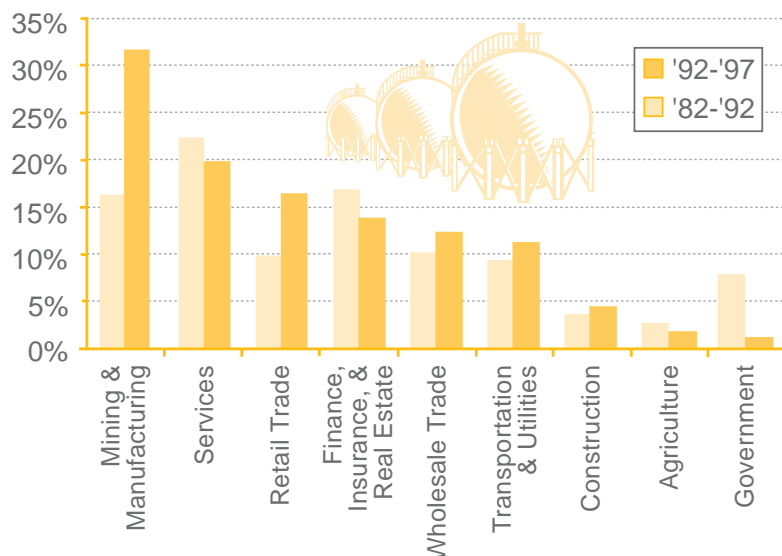
Growth in manufacturing productivity has outstripped that of the rest of the economy....



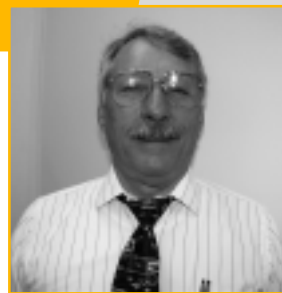
....contributing to its leading the economy's strong growth since 1992....



....and doubling its contribution to GDP growth



Source: Department of Commerce.



GUEST  
EDITORIAL

## Unlocking the Savings in Steam System Efficiency

by Fred Hart  
OIT Steam "Best Practices" Program Manager

Because steam production and use annually account for over 7 quadrillion Btu's and 30% of carbon emissions in U.S. Industry, better management of a plant's total steam system can unlock substantial savings. We believe that investment in improved steam efficiency combined with other energy efficiency best practices can reduce plant energy use by 10% to 30%.

To help industry and the nation realize such savings, we have formed a Steering Committee that is fully committed to designing and carrying out the steam initiative. The Alliance to Save Energy is partnering with OIT to facilitate the many activities of the Committee. Steam users, steam system equipment suppliers, steam-related trade associations, and state energy organizations are also represented on the Committee which is guiding the program's activities and products.

Highlights of the Steering Committee's accomplishments include:

- an energy efficiency handbook developed by the Council of Industrial Boiler Owners,
- insulation software developed by the National Association of Insulation Manufacturers,
- an active website,
- a listing of steam system-related specifications and guidelines, and
- a listing of training resources.

In progress are steam system best practices, training guidelines, and case studies. For more information visit our web site at [www.oit.doe.gov/steam](http://www.oit.doe.gov/steam) or call the OIT Clearinghouse at 1-800-862-2086.



## ***President's Bioenergy Initiative launched; OIT's Ag and Forest Products teams participate***

President Clinton recently signed a new Executive Order that promotes use of crops, trees and wastes to make transportation fuels, electricity, chemicals and other industrial products. He set a goal of tripling the use of bioenergy and bioproducts by 2010. The Order also directs the formation of several new organizations, led by the Secretaries of Energy and Agriculture, to focus federal efforts in developing 21<sup>st</sup> century, biobased technologies that can help the economy, enhance U.S. energy security, and meet environmental challenges like global warming.

Notables attending the event included Senator Richard Lugar (R-IN), author of "The National Sustainable Fuels and Chemicals Act," Dr. Bruce Dale, from Michigan State Univ., who helped to lead the National Research Council's recent report *Biobased Industrial Products: Priorities for Research and Commercialization*, and Amal Mansour from Manufacturing and Technology Conversion International who is developing a steam reforming technology to generate energy from biomass.

DOE Secretary Bill Richardson announced the award of more than \$13 million in financial assistance to promote the growth of the biomass industry and support the President's Executive Order. Many of these new R&D projects come from OIT's **Forest Products** and **Agriculture Teams'** recent solicitations.

DOE Assistant Secretary Dan W. Reicher's BioEnergy Initiative, started last fall, also directly supports the President's action. The BioEnergy Initiative has brought together public and private sector leaders to begin integrating and building this new industry. As part of that effort, a strategic vision is almost complete and discussions are underway about developing technology roadmaps. OIT and other offices under Reicher have been working as a team on that vision and are helping to plan implementation of the Executive Order.

## **THE OIT TIMES**

"Turning Industry Visions into Reality"

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